



# Leica

PHOTOGRAPHY

1957 • Number 2 • 25¢





# Leica

## PHOTOGRAPHY

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COVER

**Karl H. Peter**

It was dusk, the subject was contrasty, and the dangerously brilliant point of light from the welder's torch created a viewing problem. With the new Super Anscochrome in his M-3 equipped with Summicron lens, the photographer took a meter reading, then cautiously made three exposures, adjusting one stop under and over normal. This one is the normal exposure, 1/50 second at f/5.6, film rated at 100.

### INSIDE COVER

**James H. Karales**

Pacific coast, in blazing afternoon sun. IIIIf, 50mm Summicron; 1/500 second at f/22; underexposed on slow speed film to clarify reflection pattern.

*Leica Photography* is published by E. Leitz, Inc., at 468 Fourth Avenue, New York 16, N. Y., as a quarterly magazine, price 25 cents. Copies are sent free of charge to all registered Leica camera owners residing within the United States of America and U.S. Territorial Possessions. A subscription fee of \$1.00 per year is charged to non-owners of Leica cameras in the U.S.A., and \$2.00 to owners or non-owners elsewhere. Single copies are on sale at photographic dealers' stores, or direct from the publisher.

The editors are happy to consider original articles on photography with the Leica and photographs taken with Leica cameras and lenses. All manuscripts and photographs should be accompanied by stamped, self-addressed return labels.





## one-man show

ARTHUR ROTHSTEIN, photojournalist

*The following text was written on the occasion of a retrospective exhibition of 200 photographs by Rothstein at George Eastman House last year.*

In these days of the ever-increasing use of pictures in newspapers, magazines, and books, a new profession known as "photojournalism" has gained wide recognition. The photojournalist is first and foremost a photographer who specializes in producing pictures for publication. But he must be more than a cameraman. He must have a broad background of knowledge, so that his pictures will be fully comprehensive, con-

*Appearing here from time to time:  
selections from the finest work of  
photographers in different fields.*

vincing, and of pictorial interest. He must know a good deal about the mechanics of publishing, so that his photographs will fit the needs of the editors, the art director, the photoengraver, and the printer. He must be able to report in words those facts which no picture can convey, so as to document and point up the photographs he has taken. He must have social awareness, for he must establish relations with the people he is photographing. He must have tact, diplomacy and, above all, a keen sense of his responsibility as the photographic interpreter of vital aspects of our civilization. *(text continued on page 7)*

**Cutting hay,** Windsor County, Vermont. *Farm Security Administration—1937. Model D, 50mm Elmar.*







**Sharecropper's** wife and child. *Farm Security Administration*—1935. Model D, 50mm Elmar.



**Farmer's child**, Georgia. *Farm Security Administration*—1936. Model D, 50mm Elmar.





**Flood refugee, Missouri, Farm Security Administration - 1940, IIIc, 50mm Elmar.**





**John Marin**, American painter. For *Look* magazine—1949. III f, 50mm Summitar, with Leicavit.

Arthur Rothstein has been an outstanding photojournalist for the past twenty-two years. A graduate of Columbia University, where he majored in physics and chemistry, he was appointed photographer to the historical section of the Farm Security Administration in 1935. With a small group of photographers, including Dorothea Lange and Walker Evans, he traveled 30,000 miles to bring to the American people a searching and moving record in pictures of the human problems and technical accomplishments of the people engaged in agriculture. These photographs, now preserved in the Library of Congress, pointed the way to a vital conception of the use of photography. Often called "documentary," the photographs were at once startling in their objective presentation and intensely moving in their sympathetic interpretation. Often the photographs were beautiful.

During World War II Rothstein made the same kind of photographs for the Office of War Information, this time of wartime industry. He then served in the U. S. Army Signal Corps, first as an instructor and then as Photographic Officer in India and China. After the war he returned to the Far East to photograph the activities of the United Nations Relief Administration. The record he made of the tragic famine in China is a powerful document.

These wartime activities interrupted his career at *LOOK*, the staff of which he joined in 1940. Now Technical Director of Photography, he has brought to the magazine his invaluable experience as a documentary and combat photographer. Through his own

photographs and through the direction he has given to others, he has contributed greatly to the photographic style of the picture essay.

In his recent book, *Photojournalism*, Rothstein writes: "These are the photojournalists: observers of people and events who report what is happening in photographs; interpreters of facts and occurrences who write with a camera; skilled communicators whose images are transmitted visually via the printed page."

Rothstein's work is a demonstration of photojournalism at its best—in the wide variety of subjects, in the brilliance of interpretation, and in the consistent technical quality of the photographs.

BEAUMONT NEWHALL,  
*Curator, George Eastman House*

#### **Rothstein's technique**

*Rothstein's photographic technique has been as versatile as his career. Naturally, he uses many different makes and types of equipment. The photographs selected for reproduction here are representative of his work with the Leica, various models of which he has used as important tools in his collection of photographic techniques since he began in photography in 1935.*





**U. N. Security Council** meeting, Lake Success, New York. For *Look* magazine. IIIIf, 135mm Hektor.

### **one-man show** (contd.)

**Ballet class** in Carnegie Hall studio. For *Look* magazine. IIIIf, 50mm Summicron.





## experts learn about the Leica

new technical center teaches dealers the fine points

"Do actual shutter speeds vary from those marked on the dial?" "In close-up work, how should I figure my exposure?" "Can I hand-hold a 200mm Telyt without getting camera shake?"

Your dealer—the man who daily gets these and other questions about Leica operation—can now answer even more obscure ones. If he has been through the Leica Technical Center, that is.

A week-long course in Leica photography is now available free at the new Leica Technical Center to Franchised Leica dealers. From Monday through Friday every week a new group of eight students receives intensive instruction. It covers not only Leica technique, but many aspects of photographic theory as well.

### the men who run the center

*Sergei von Holbeck*, who has been conducting Leica schools in Germany and other countries for several years, has been made available by Ernst Leitz, Wetzlar to supervise the organization and development of the Center. He is a first-rate technician and teacher, and has a puckish sense of humor that is delightfully unexpected in a man whose field is science and optical engineering. His off-the-cuff comments keep even the more theoretical parts of the course lively and entertaining. Mr. von Holbeck returned to Germany late in July to fill several teaching commitments in Europe.

*John F. Brooks* is both a teacher in and administrator of the Center. He is a Leica expert of 20 years standing with a background in electrical engineering and a special bent for making photo technology seem simple and understandable. With a familiar kitchen match, for instance, he begins a session that brings the lumen-millisecond-half-peak terminology of flash photography right down to earth.

The third teacher is *Walter G. Heun*, (rhymes with join) former staff member of both the Leica Technik and the Leica Schule in Germany before he joined the Technical Center here.

Many of you may remember Mr. Heun as the flawless projectionist-assistant to Walther Benser during the latter's first tour of this country. Heun joined Ernst Leitz, GmbH, Wetzlar in 1951 as a specialist in motion picture projectors. In 1953, he assisted Walther Benser in European lecture tours. Early in 1956 he joined the Leica Technik staff and later that year taught at the Leica Schule.

### "Inside" Information

Each course at the new Center begins with a discussion of resolution—what it is and its relationship to practical photography. Next the construction and operation of the M-3 are described.

Along the way, instructors pass on dozens of little tips and "twists"—things you may never find in textbooks. For instance, students learn that if you set the M-3 shutter at "B" and release it via the self-timer, it gives an automatic exposure of about 1½ seconds.

In discussing Leica lenses, students learn what determines the focal length of a "normal" lens, the function of lens coatings, and how aberrations are "designed out" of lenses. Among other facts, they learn the optimum aperture (for maximum image sharpness) for the various Leica lenses as well as the best aperture at which to set lenses for copying work.

Students take a field trip on the second day of school to use their newly gained knowledge of the camera and its lenses. They learn, by practical example, the difference in field of view and the control over perspective given by four lenses of different focal lengths. Then students themselves shoot pictures at fast and slow shutter speeds, at maximum and minimum depths of field, and with various filters. After the morning's field trip, films are processed in the darkroom-lab of the Technical Center.

One of the most interesting sessions discusses Leica close-up equipment and its use. Not only the *how* of macrophotography is explained, but also the *why*. Students make document copies and pictures of small objects, learning how to use various pieces of Leica close-up equipment. Lighting and exposure techniques for close-up work are also part of the instruction. Final sessions cover darkroom equipment and the fine points of Leitz projector design and operation.

The Technical Center is closed for the summer, but classes begin again on September 9. Remind your dealer about it.

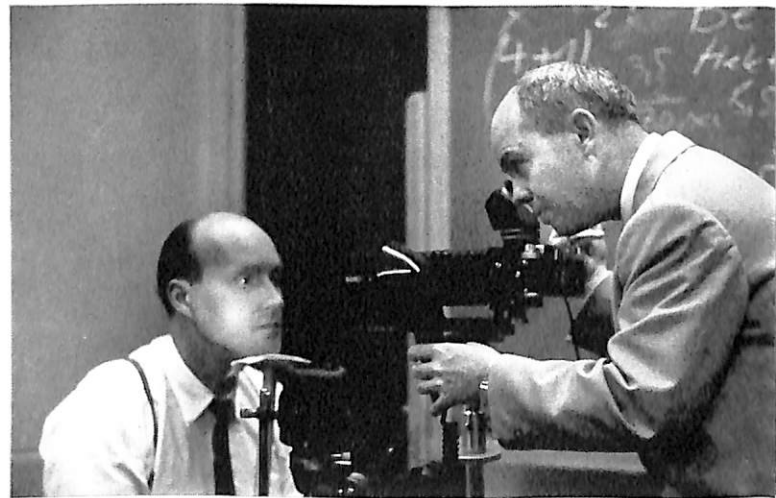
*Photographs by Maynard Frank Wolfe and Kenneth Poli, showing the Technical Center in session, appear on the next two pages.*



CLASSES ARE INFORMAL and contain no more than eight students.



OPERATING CAMERA RANGEFINDER by hand is new experience.



STUDENT AND TEACHER see eye to eye in ophthalmic work.



INCIDENT LIGHT READING is taken by a student for copy work.





AFTER FIELD TRIP students examine films before enlarging.

JOHN BROOKS explains how Focomat enlarger works in Center's lab.



INDIVIDUAL INSTRUCTION helps students use new techniques.



PRADO SM 300 PROJECTOR is "dissected" by instructor von Holbeck. ▲



HENRY MANN, President of E. Leitz, Inc., awards diploma to graduate.



**what  
goes  
on  
here?**

*photographs by Bill Clinkscales*







*these "modern dancers"  
are actually participating in a  
serious drama—turn the page to see  
how these pictures were made ►*



trying to hold down a buoyant airship, a Navy crew does capers for the camera



When Los Angeles photographer Bill Clinkscapes was invited for a half-hour blimp ride while covering the opening ceremonies of the new San Francisco Airport, he hardly expected to be tied up in the air for seven hours. And if it were not for swift ground winds forcing the landing crew to struggle against the buoyancy of the dirigible and the eccentricity of whipping winds, he might not have captured such magnificent moments of action. As the blimp moved close to the mooring, the ground crew was unaware that their cavorting cut some pretty fancy figures for Clinkscale's camera inside. Inspired by the resulting pictures, the photographer went back, on assignment by *Friends* magazine, to reshoot the action close at hand.

The "K-type" airship that carried Clinkscapes carries a crew of ten, is 272 feet long and requires a crew of 40 to handle it on the ground. In one of the photographs, above, Lt. Roberts, an airship pilot, is directing the ground crew, much as the choreographer of the troop. Other photographs on this page lend explanatory perspective to blimps and crews, but the intriguing and dramatic viewpoint of the pictures on the preceding spread is a product of a photographer's keen imagination and vision and swift-acting camera technique.

Using a fast shutter speed (1/500 second) and a small aperture (f/8) to "silhouette" the figures, Clinkscapes shot rapidly with two IIIf cameras, one

equipped with the 50mm Summicron f/2 lens, the other with a 35mm Summaron. Thus, he was able to make quick switches between standard and wide-angle views, and fill the frame appropriately for every type of action that was taking place around the lowering blimp's cabin.

A blimp can rise freely because it displaces air with a lighter-than-air volume. But during flight, when it is pushed horizontally, the blimp or dirigible acquires equilibrium. To be brought down, a blimp must be slightly "heavy," but if this heaviness is offset by gusty winds, appreciable lack of wind, or the end of all forward speed, the blimp will tend to "free-balloon." Therefore, as Clinkscapes says, "the pilot has to be very precise, and the 40-man ground crew sometimes goes into a ballet-like routine in its efforts to tie down the blimp."

That's exactly what happened on that windy day at the Marine Air Facility in Santa Ana, California. "While approaching the ground," Clinkscapes tells us, "I located myself in the Plexiglas nose of the cabin. As the ground crew ran hither and yon, grasping at the landing lines, I was making exposures. The figures on the ground reminded me of a ballet. The ground crewmen would rush and overshoot a landing line and try to halt in what appeared to be mid-air. They were also swinging on the lines and the overall effect was of a team, although scattered, doing very difficult dance routines."



# report on the new Super Anscochrome

Norman Rothschild

high speed color film matches miniature camera in versatility

To the amateur or professional, the miniature camera is a tool that will work for pictures of a wide variety of subjects and under working conditions that run from excellent to miserable. Within minutes of taking a portrait you might be setting up a macrophotograph—or taking football shots in the rain. Often, you will want to shoot many of them in color.

The new Super Anscochrome seems to be the color film to match this camera versatility. Its amazingly high exposure index of 100 (*without* forced development) can be a kind of color photography investment. It will help you to bring in photographic dividends, come rain or shine.

Combine Super Anscochrome with fast, modern lenses and you have ideal speed for "available light" pictures in color. No longer will you have to forego action photography on cloudy days or in the shade just because "color film is too slow."

## the new advantages

You can take advantage of Super Anscochrome's speed and move your portrait subjects out of the glaring sun and into the shade. This will keep them from squinting, help them relax, and get you more natural-looking shots. There'll be speed to spare so that you can shoot fast enough to capture fleeting expressions. (Don't forget to slip on a UV-15 or Skylight filter for shade shots!)

The new film can help your bright light shots, too. For instance, for really sharp transparencies, you can use fast shutter speeds to minimize blur from camera movement. In bright sunlight you can shoot average subjects 1/200 second at f/11! This setting is fast enough to stop most ordinary action, and has a diaphragm opening small enough to cancel most focusing errors! You can stop nearly any action at 1/1000—by opening to f/4.5 in average sunlight!

Another boost to color photography that higher speed brings is greater depth of field; you can stop way down and still use a reasonably high shutter speed. With a 50mm lens focused at 15 feet and set at f/22, for instance, everything will be in focus from 6 feet 4 inches to infinity. With a 35mm lens, everything beyond 4 feet 1 $\frac{3}{4}$  inches will be sharp. The advantages of this depth for "grab shots" outdoors, or for shooting landscapes with foreground

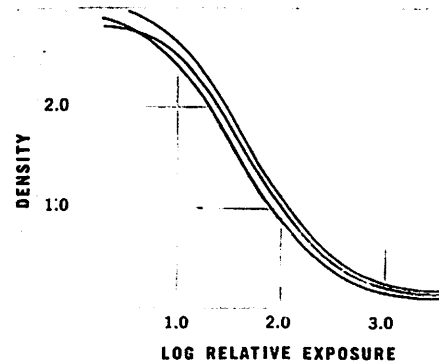


Fig. 1. CLOSE CONFORMITY of characteristic curves of color components in the new Super Anscochrome indicates that color response is consistent over the full tonal range.

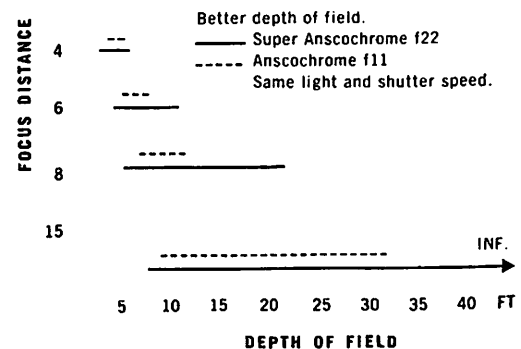


Fig. 2. DEPTH OF FIELD, with same light and shutter speed, is increased when using new, faster film. The comparison appears to be based on depth of field for the 50mm lens.

Charts after Ansco literature.

figures, are obvious.

In nature photography, shooting a life-size (1:1) picture of a flower calls for double the normal bellows extension, which means four times the normal exposure, or two stops. If you decrease the shutter speed, you run the risk of subject movement. But, since Super Anscochrome's basic exposure at f/16 in bright sun is 1/100 second, you could shoot at 1/25 to allow the needed extra exposure. This is fast enough to stop slight tremors, yet assures good depth of field. In outdoor sports photography you will have

enough depth of field in good light to minimize the need to refocus while following action.

Super Anscochrome has a place in indoor flash photography, too—especially for action pictures. You can shoot 1/250 at about f/4.5 with the lamp at 10 feet—using either a 6B or 26B flashbulb.

#### some practical tests

By this time you may have said, "Sure! This film has speed. But what has been sacrificed to gain it? Fine grain? Color quality?"

Here's my own experience after shooting many rolls of Super Anscochrome: First, I exposed some film and judged the results on their own merits. I included a variety of outdoor subjects both in sunlight and in the shade. In the shade I used a UV-15 filter. I also made a number of pictures with electronic flash and blue flash lamps. All results were extremely pleasing with a high degree of color fidelity.

Next I checked Super Anscochrome against regular Anscochrome, comparing them for color, graininess, and latitude. Comparable pictures on the two films (made at the same time under the same conditions) were hard to tell apart. Differences, such as apparent lower color saturation, and a stronger but not unpleasant green rendition in Super Anscochrome, were so slight that it took quite a bit of examination before I could detect them.

Ansco makes no claim that its new film is as fine-grained as regular Anscochrome. Under a 20X magnifier some grain differences can be detected. But in ordinary projection and in making color enlargements, these differences hardly make themselves felt. (*Note cover of this magazine.—Ed.*)

In latitude, Super Anscochrome proved itself the equal of regular Anscochrome. Two stops under and two stops over still gave acceptable results. Changes in exposure produce density changes over a wide range, virtually free from distortions or shifts in color balance. Ansco attributes this wide latitude to what is called *curve conformity*. This means that the gradation curves for the three layers in Anscochrome films are extremely similar. (*See Fig. 1—Ed.*) This curve conformity also explains why Super Anscochrome, exposed to the wrong kind of light source, nevertheless often produces pleasing color.

I found still another bonus in the wide exposure latitude of Super Anscochrome. With special processing the new film can be used with exposure indexes of 150 and (with a little loss of quality) even 200!

Super Anscochrome is processed with the same chemicals as is regular Anscochrome which has an exposure index of 32. For above-normal-speed proc-

essing services, see your photo dealer or write to Ansco for information.

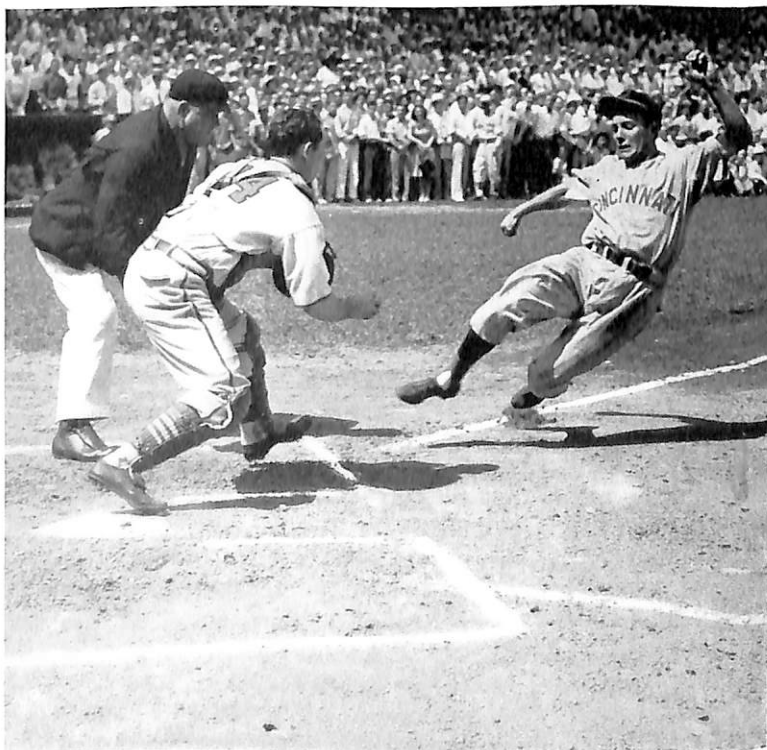
If you prefer to do your own processing, you will be interested in Ansco's time recommendations for the first and color developing steps. All other processing steps are in accordance with the instructions

| EXPOSURE INDEX (ASA) | TIME IN MINUTES |                 |
|----------------------|-----------------|-----------------|
|                      | first developer | color developer |
| 100 (NORMAL)         | 15              | 14              |
| 150                  | 19              | 16              |
| 200                  | 22              | 16              |

With an Ansco #10 filter or an 80A in place, you can expose under photoflood light, using an index of up to 50, depending on the processing.

contained in the processing kit for this film.

I find Super Anscochrome an exciting product. It has speed without the loss in quality that has been associated with high-speed color. It will open many new doors in color photography.



SHUTTER SPEED at 1/1000 second calls for only f/4.5 in sunlight. Telephoto pictures of fast sports action are now easy.

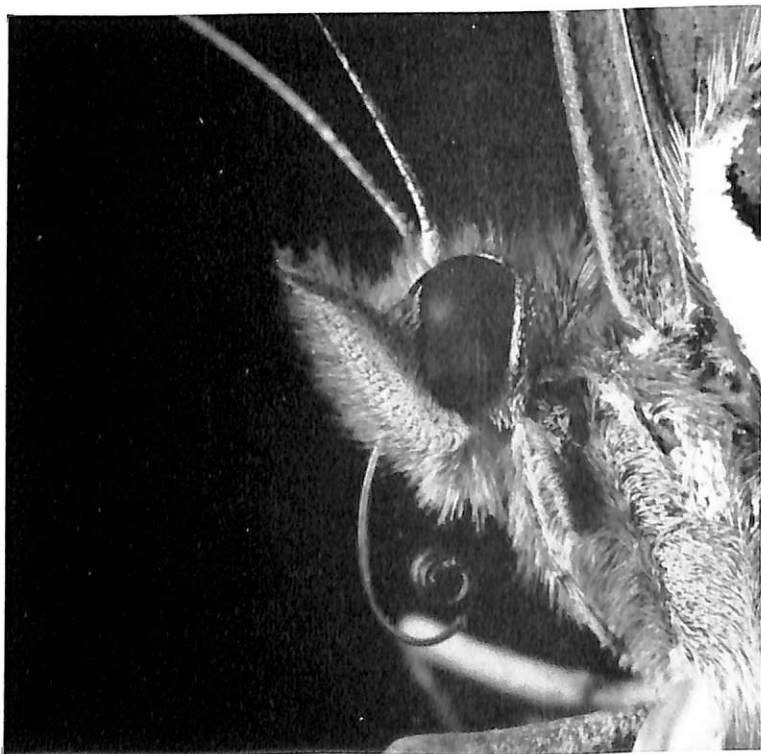




Horst H. Baumann

*Four of the many subjects most common to black-and-white shooting, now made easier in color with Super Anscochrome. The reproductions are not necessarily from Leica photographs.*

IN SHADED PORTRAITS, strained facial expression can be avoided. Backlit subjects can be shot at f/11 at 1/100.



INCREASED DEPTH OF FIELD, so valuable in macrophotographs, is provided by small stops and short exposures with new film.



SCENES IN low light and interesting muted colors can be shot with ample depth of field and high shutter speed.

## an introduction to film sensitometry / Hugo Emanuel

here are the basic "whys" of emulsion performance

*This is the second of two articles on an important aspect of the science of photography. In everyday language, it answers the practical questions that arise about the behavior of the many new films on the market.*

The words *gamma* and *contrast* are quite often used synonymously. But they differ, although they are closely related.

*Contrast* is a much overworked word in the field of photography. Basically, it is the difference between the densities of two areas of a photographic image. A subject or a scene which has a wide range of differences in the brightness of the objects is usually referred to as a "high contrast" scene. A scene with smaller differences in brightness has "low contrast." Actually the terms *brightness scale* and *brightness range* are more descriptive and correct than the word "contrast" in this case, since we are speaking of the scale, or range, of *brightness* in the scene from the deepest shadow to the brightest high light.

The difference between the highest and lowest *densities* in a negative is often called "contrast." However, we could more appropriately call it the *density scale* or *density range*, because it refers to the range of densities found in the negative.

### definition of gamma

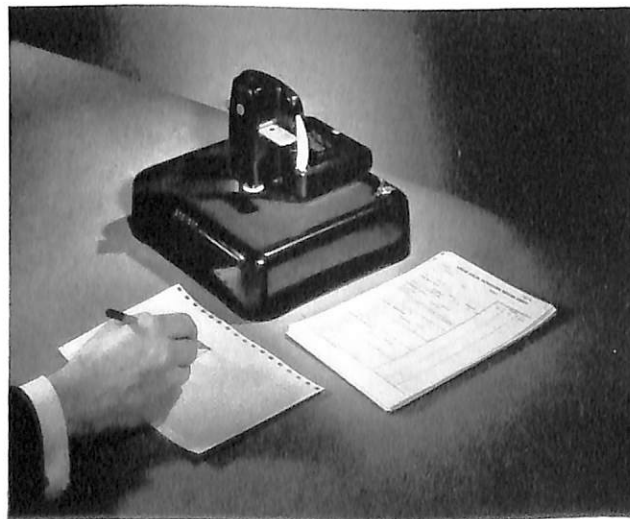
A developed negative may have a wide range of densities because it recorded a scene of wide brightness range, or because it was developed to increase the contrast or density differences. The contrast resulting from development can be measured and expressed numerically as gamma.

Gamma, designated by the Greek letter  $\gamma$ , is a numerical value which indicates the slope of the straight-line portion of the characteristic curve. (See Part I of this article, No. 1, 1957, issue.—Ed.). It is a measure of the contrast (or density differences) resulting from a given amount of development. It is sometimes called the development contrast. At a given temperature, gamma increases with increasing developing times until it reaches a value beyond which it will not in-

crease even though you leave the film in the developing solution. The maximum gamma obtainable with a particular film-and-developer combination is called *gamma infinity*. ("Normal" gamma for Leica negatives is from 0.5 to 0.7—Ed.). Gamma is affected not only by development time, but also by such variables as the composition of the developer, the temperature, and agitation during development.

The gamma of a negative shows the relationship between the brightness differences of the subject and the density differences of the negative image produced by development. A gamma of 1 indicates that density differences in the developed negative equal the corresponding brightness differences in the subject. A higher or lower gamma indicates, respectively, higher or lower density differences than it does brightness differences. Since gamma is related only to the straight-line portion of the characteristic curve, it tells us nothing of density relationships in the toe and shoulder areas (*Leica Photography*, No. 1, 1957).

There are several ways to determine gamma from the characteristic curve. One simple method is to extend the straight-line portion to the base of the graph, as shown in Figure 1. Then, from some point on the straight-line, drop a vertical line to the base to form a



DENSITOMETER, the instrument for determining the characteristic curve of a film. Gray-scale step densities are graphed against logarithms of the exposures which produced them.

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HUGO EMANUEL is an expert at putting technical information into understandable language, having written and edited a great many papers on photography.



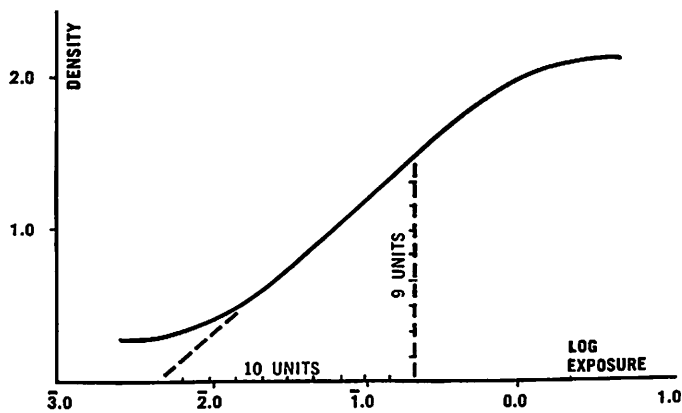


FIG. 1 METHOD OF DETERMINING GAMMA

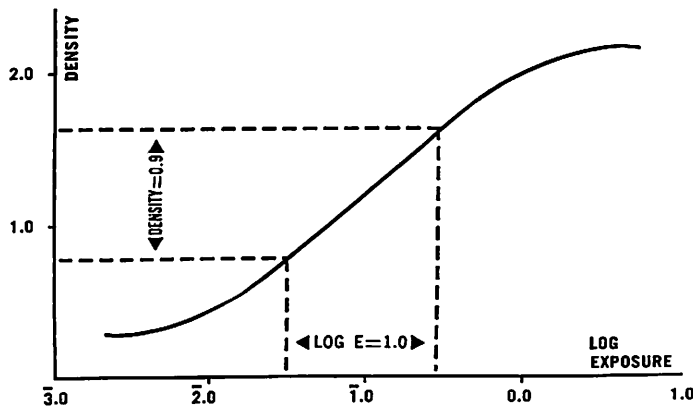


FIG. 2 METHOD OF DETERMINING GAMMA

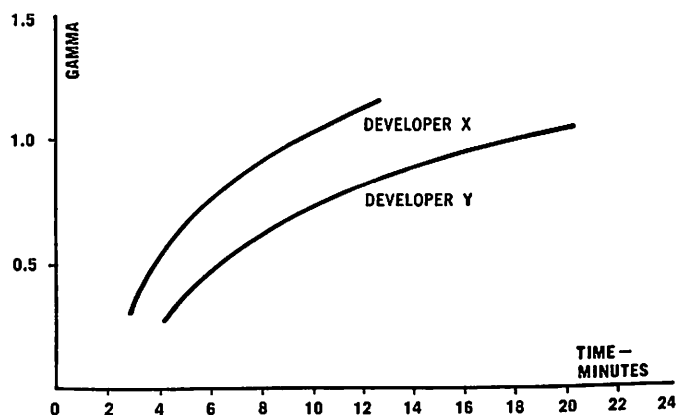


FIG. 3 TYPICAL TIME-GAMMA CURVES

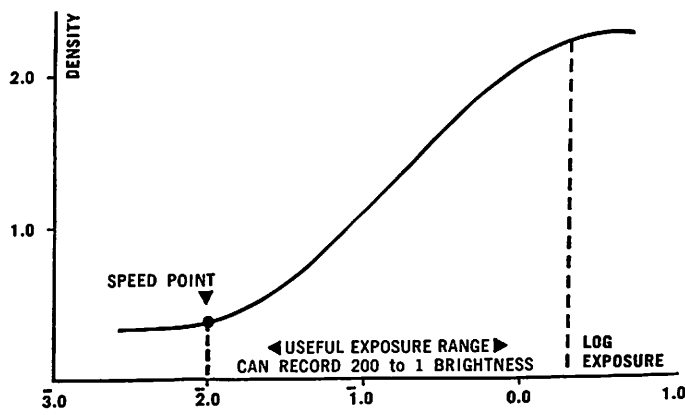


FIG. 4 USEFUL EXPOSURE RANGE

triangle. Write the length of the vertical line over the length of the base of the triangle, forming a fraction. In Figure 1, the length of the vertical line is 9 units, the base 10. Thus, the gamma is 9/10 or 0.9.

Another way to find the gamma is to find the increase in density over a log E range of 1 on the straight-line. For example, in Figure 2, at log E = 2.5 the density is 0.75, and at log E = 1.5 the density is 1.65. Thus, the density has increased 0.9 with a log E increase of 1, and the gamma is 0.9.

Film manufacturers publish *time-gamma curves* which tell the photographer how long he should develop his film to get the gamma he wants (Fig. 3).

When you photograph an average scene, the brightest parts of the image falling on the film are usually not more than 30 times as bright as the darkest parts. However, most films can record a brightness range several times as great as this. So, we are able to give more or less exposure than indicated by an exposure meter and still produce good pictures. This, we say, is due to the *latitude* of the film.

#### film latitude

The latitude of a film is the range of brightness values which it can properly record. This range is sometimes called the *useful exposure range* and covers a log exposure interval between the speed point on the toe of the curve and a point on the shoulder (Fig. 4).

The useful exposure range of most modern films is much greater than the brightness range of the average scene. Thus, you can make good negatives of a scene with several different camera exposure settings. This permissible range of camera settings is the *exposure latitude*. It is what most photographers mean when they speak of latitude.

Although sensitometry is primarily of interest to the photographic scientist, any photographer gains by having at least a speaking acquaintance with it. Naturally, you're not going to consult the characteristic curve of a film each time you shoot a picture. But, if you understand the fundamentals of sensitometry, you can make better use of the speed, latitude, gamma, and other characteristics of your film.

## brighter pictures with fill-flash / Murray Zinn

Ever wonder why experienced color photographers prefer to work on a slightly hazy day rather than on a brilliantly sunny one? It's because the diffuse light fills the shadows, reducing the difference in brightness between shadows and high lights. This avoids excessively blue shadows or harsh, burned-out high lights, (depending on which you expose for) and keeps detail in both areas. Black, empty shadows also are a problem with the slower black-and-white films of inherently high contrast.

Since you don't confine your picture-taking to hazy light, how can you lick the sunny-day problem of high contrast? By firing a shutter-synchronized flash bulb at the proper distance, you can put exactly the amount of light you want into the shadows. This is an especially useful technique for portraits. You can take back- or side-lit poses and avoid strain and squinting, yet keep sparkling catch-lights in the eyes.

Here's how fill-flash works: First, take an exposure reading for the high light areas. Then, in a variation of the indoor flash exposure technique, determine the proper lamp-to-subject distance by dividing the aperture you are using into the guide number of your flash bulb. The answer is the number of feet from which your bulb will just about cancel out the shadows—a 1:1 high light-shadow ratio.

For example, using an outdoor exposure of f/8 at 1/50th, a #6 bulb and a film in the 24-40 exposure index group, the guide number would be 100. The bulb-to-subject distance is  $12\frac{1}{2}$  feet ( $\frac{100}{f/8} = 12.5$ ). This distance will give about a 1:1 high light-to-shadow ratio. To find the proper distance for the bulb in order to produce a 2:1 ratio, multiply the number of feet by 1.4. For a 3:1 ratio, the factor is 1.7; for 4:1, multiply by 2.

While the arithmetic is simple, it is a bother to have to calculate the proper distance every time you make a shot. So, the charts that appear here have been drawn up for your convenience. They are limited to one type of flash bulb—the “focal-plane” type—plus electronic flash. Other bulbs will work, of course, but the focal-plane bulbs are recommended for best results with the Leica, at all speeds. (*Note: The special electronic flash settings on the IIIg and M-3 models cannot be used with Class M and FP flash bulbs.—Ed.*)

Using the charts is simple. First, find the proper exposure for the high lights in your scene. Then, on the chart for the bulb you are using, find the horizontal column for the aperture you have chosen. Read across to the vertical column for the shutter speed. Finally, read in the vertical column for your film, the proper distance at which to put the bulb for a 1:1, 2:1, 3:1 or 4:1 ratio.

For example, you are using an exposure of f/8 at 1/50th with Daylight Kodachrome. You have #26B blue bulbs. This is a color portrait and you want a 3:1 ratio—a good one for color. In the column for Kodachrome in the #6B-#26B chart at the coordinates for f/8 at 1/50th, you will find that 7 feet is the proper distance for a 3:1 ratio. For 2:1 it would be  $5\frac{1}{2}$  feet; for 1:1, 4 feet.

These ratios will be affected somewhat by the amount of light being reflected into the shadows by the surroundings. And, like any charts, these were made to be changed to suit your own tastes. But they will help you to get started toward livelier outdoor pictures with a professional touch. Next time you're shooting, take along these charts and a few bulbs and see how much fill-flash can add to your picture-taking.

### EFFECT OF VARYING RATIOS OF FILL-FLASH TO SUNLIGHT (WITH DISTANCE FACTORS)

NO FILL

1 to 1 RATIO

2 to 1 RATIO (Distance Factor=1.4)

3 to 1 RATIO (Distance Factor=1.7)

4 to 1 RATIO (Distance Factor=2)





# **Fill-Flash Table I**

Subject distances in feet, using clear photoflash lamps #6 (G.E.) or #26 (Sylvania) with black & white film.

| SHUTTER<br>SPEED | 1/25  | 1/30  | 1/50  | 1/60    | 1/75  | 1/100 | 1/200 | 1/250   | 1/500 | 1/1000 |       |         |
|------------------|-------|-------|-------|---------|-------|-------|-------|---------|-------|--------|-------|---------|
| ASA<br>RATING    | 12-20 | 24-40 | 50-80 | 100-160 | 12-20 | 24-40 | 50-80 | 100-160 | 12-20 | 24-40  | 50-80 | 100-160 |
| 1:1              |       |       |       |         |       |       |       |         |       |        |       |         |
| 2:1              |       |       |       |         |       |       |       |         |       |        |       |         |
| 3:1              |       |       |       |         |       |       |       |         |       |        |       |         |
| 4:1              |       |       |       |         |       |       |       |         |       |        |       |         |
| f/2              |       |       |       |         |       |       |       |         |       |        |       |         |
| f/2.8            |       |       |       |         |       |       |       |         |       |        |       |         |
| f/4              |       |       |       |         |       |       |       |         |       |        |       |         |
| f/4.5            |       |       |       |         |       |       |       |         |       |        |       |         |
| f/5.6            |       |       |       |         |       |       |       |         |       |        |       |         |
| f/8              |       |       |       |         |       |       |       |         |       |        |       |         |
| f/11             |       |       |       |         |       |       |       |         |       |        |       |         |
| f/16             |       |       |       |         |       |       |       |         |       |        |       |         |

NOTE: These tables have been arranged on one sheet so that the page may be detached for convenient use. Blank spaces may be filled in for individual requirements, where applicable.

## Fill-Flash Table II

Subject distances in feet, using blue photoflash lamps #6-B (G.E.)  
or #26-B (Sylvania) with daylight color films

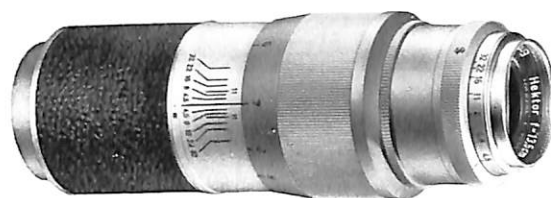
| SHUTTER SPEED | 1/-1/25                  | 1/-1/30                 | 1/-1/50                 | 1/-1/60                   | 1/-1/75                 | 1/-1/100                   | 1/-1/200                 | 1/-1/250                 | 1/500                    |
|---------------|--------------------------|-------------------------|-------------------------|---------------------------|-------------------------|----------------------------|--------------------------|--------------------------|--------------------------|
| FILM TYPE     | KODAK                    | ANSCO<br>EKTA           | KODAK                   | ANSCO<br>EKTA             | KODAK                   | ANSCO<br>EKTA              | KODAK                    | ANSCO<br>EKTA            | KODAK<br>ANSCO<br>EKTA   |
| f/2           | 1:1<br>2:1<br>3:1<br>4:1 |                         |                         |                           | 12<br>16                | 10<br>14<br>17             |                          |                          | 13<br>18                 |
| f/2.8         | 1:1<br>2:1<br>3:1<br>4:1 |                         | 10<br>14<br>17          |                           | 8<br>11<br>13 1/2<br>16 | 6 1/2<br>9<br>11 1/2<br>13 | 10<br>14<br>17           |                          | 8<br>11<br>13 1/2<br>16  |
| f/4           | 1:1<br>2:1<br>3:1<br>4:1 | 11<br>15<br>18          | 8<br>11<br>13 1/2<br>16 | 13<br>18<br>21<br>24      | 6<br>8<br>10<br>12      | 5<br>7<br>9<br>11          | 4<br>6<br>8<br>10        | 3 1/2<br>5<br>6 1/2<br>8 | 5<br>7<br>9<br>11        |
| f/4.5         | 1:1<br>2:1<br>3:1<br>4:1 | 9<br>12 1/2<br>15<br>18 | 6<br>8<br>10<br>12      | 10<br>14<br>17<br>21      | 5<br>7<br>9<br>11       | 4<br>6<br>8<br>10          | 3 1/2<br>5<br>6 1/2<br>8 | 2 1/2<br>3 1/2<br>4<br>5 | 3<br>4<br>5<br>6         |
| f/5.6         | 1:1<br>2:1<br>3:1<br>4:1 | 7<br>10<br>12<br>14     | 5<br>7<br>9<br>11       | 8 1/2<br>12<br>15<br>18   | 4<br>6<br>8<br>10       | 3<br>5<br>6<br>8           | 2 1/2<br>3 1/2<br>4<br>5 | 1 1/2<br>2 1/2<br>3<br>4 | 2<br>3<br>4<br>5         |
| f/8           | 1:1<br>2:1<br>3:1<br>4:1 | 5<br>7<br>8 1/2<br>10   | 4<br>5 1/2<br>7<br>8    | 5 1/2<br>7<br>8 1/2<br>10 | 3<br>4<br>5<br>6        | 2 1/2<br>3<br>4<br>5       | 1 1/2<br>2<br>3<br>4     | 1<br>1 1/2<br>2<br>2 1/2 | 1<br>1 1/2<br>2<br>2 1/2 |
| f/11          | 1:1<br>2:1<br>3:1<br>4:1 | 4<br>6<br>7<br>8        | 3<br>4<br>5<br>6        | 4<br>5 1/2<br>7<br>8      | 2 1/2<br>3<br>4<br>5    | 1 1/2<br>2<br>3<br>4       | 1<br>1 1/2<br>2<br>2 1/2 | 1<br>1 1/2<br>2<br>2 1/2 | 1<br>1 1/2<br>2<br>2 1/2 |
| f/16          | 1:1<br>2:1<br>3:1<br>4:1 |                         |                         |                           |                         |                            |                          |                          |                          |

## Fill-Flash Table III

Subject distances in feet, using Braun Hobby electronic flash units  
AUTOMATIC (at normal light beam)      STANDARD (at normal light beam)  
ASA RATING FOR COLOR AND BLACK & WHITE FILMS

| APERTURE | LIGHTING RATIO           | ASA 10<br>KODACHROME | ASA 32<br>ANSCOCHROME<br>EKTACHROME | ASA 100<br>SUPER ANSCOCHROME | ASA 12-20 | ASA 24-40 | ASA 50-80 | ASA 100-160 | ASA 10<br>KODACHROME | ASA 32<br>ANSCOCHROME<br>EKTACHROME | ASA 100<br>SUPER ANSCOCHROME | ASA 12-20 | ASA 24-40 | ASA 50-80 | ASA 100-160 |
|----------|--------------------------|----------------------|-------------------------------------|------------------------------|-----------|-----------|-----------|-------------|----------------------|-------------------------------------|------------------------------|-----------|-----------|-----------|-------------|
| f/2      | 1:1<br>2:1<br>3:1<br>4:1 | 14                   | 19                                  | 23                           | 28        | 32        | 36        | 40          | 11                   | 15                                  | 18                           | 22        | 26        | 30        | 34          |
| f/2.8    | 1:1<br>2:1<br>3:1<br>4:1 | 14                   | 19                                  | 23                           | 28        | 32        | 36        | 40          | 11                   | 15                                  | 18                           | 22        | 26        | 30        | 34          |
| f/4      | 1:1<br>2:1<br>3:1<br>4:1 | 14                   | 19                                  | 23                           | 28        | 32        | 36        | 40          | 11                   | 15                                  | 18                           | 22        | 26        | 30        | 34          |
| f/4.5    | 1:1<br>2:1<br>3:1<br>4:1 | 14                   | 19                                  | 23                           | 28        | 32        | 36        | 40          | 11                   | 15                                  | 18                           | 22        | 26        | 30        | 34          |
| f/5.6    | 1:1<br>2:1<br>3:1<br>4:1 | 14                   | 19                                  | 23                           | 28        | 32        | 36        | 40          | 11                   | 15                                  | 18                           | 22        | 26        | 30        | 34          |
| f/8      | 1:1<br>2:1<br>3:1<br>4:1 | 14                   | 19                                  | 23                           | 28        | 32        | 36        | 40          | 11                   | 15                                  | 18                           | 22        | 26        | 30        | 34          |
| f/11     | 1:1<br>2:1<br>3:1<br>4:1 | 14                   | 19                                  | 23                           | 28        | 32        | 36        | 40          | 11                   | 15                                  | 18                           | 22        | 26        | 30        | 34          |
| f/16     | 1:1<br>2:1<br>3:1<br>4:1 | 14                   | 19                                  | 23                           | 28        | 32        | 36        | 40          | 11                   | 15                                  | 18                           | 22        | 26        | 30        | 34          |
| f/32     | 1:1<br>2:1<br>3:1<br>4:1 | 14                   | 19                                  | 23                           | 28        | 32        | 36        | 40          | 11                   | 15                                  | 18                           | 22        | 26        | 30        | 34          |

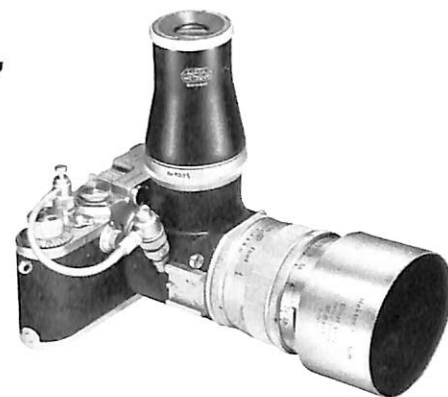




## HERE ARE YOUR LEICA LENSES:

### the "longs"

*This is the fourth in a series of articles on the Leica lenses, presented for a better understanding of their variety and versatility within the Leica system. Emphasis will be on practical applications to general picture-taking, rather than on technicalities.*



When you have to make an "onstage" picture from Row M; when a normal lens makes a molehill out of a mountain; when your subject "freezes up" or runs off as you walk in close, these are the times to be using a long-focus lens.

The 125mm and 135mm Hektor lenses offer you the advantages of perspective control and image enlargement found in the 85mm and 90mm lenses—but to a greater degree.

#### are they telephotos?

When is a lens a long-focus lens? Usually, any lens of more than the normal focal length for its negative size is called a "long focus." For convenience, we have chosen to call the 85mm and 90mm Leica lenses (discussed in our last issue) "medium-longs," reserving "long-focus" for the 125mm and 135mm Hektors. Although the latter two lenses are often referred to as "telephotos," strictly speaking, they are not.

A telephoto lens (to be treated in our next issue), while of long focal length, has a short back focus. The back focus is the distance between the back surface of the lens and the image of an object at infinity. The focal length of a telephoto lens is considerably greater than its back focus.

#### the 135mm Hektor

The 135mm lens has versatility beyond that of the 90mm lens. In its regular mount it couples to the camera rangefinder. In a special short mount it can be used with the Visoflex to get the direct image control offered by groundglass focusing. By adding the Focusing Bellows to the 135mm lens and Visoflex, you can focus continuously from infinity all the way down to a one-to-one (life-size image) ratio.

Like the 90mm lens, the 135mm is excellent for portrait work. At about six feet, for instance, the 135mm will produce a closely framed head-and-shoulders image on the negative; the 90mm will give

approximately a waist-length portrait.

Since an increase in focal length reduces the depth of field of a lens, the 135mm gives a plastic quality to portraits. The features of the face remain in focus while the image of the rest of the head is softened.

One of the biggest advantages of extra focal length, however, is its ability to "pull in" distant subjects. The 135mm lens gives an image 2.7 times the size of that given by a normal 50mm lens, and 50 per cent larger than a 90mm image. For example, the 135mm lens gives as big an image at 48 feet as a 50mm lens would give at 18 feet. This means that you can get close-ups of zoo animals which are too far away for a normal lens, or (in effect) you can bring a

#### facts about Leica 125mm and 135mm lenses

|                    | 125MM HEKTOR              | 135MM HEKTOR   |
|--------------------|---------------------------|--|
| CONSTRUCTION       | triplet type              | triplet type   |
| ELEMENTS           | 4                         | 4  |
| MAXIMUM APERTURE   | f/2.5                     | f/4.5  |
| MINIMUM APERTURE   | f/22                      | f/32   |
| ANGLE OF VIEW      | 20°                       | 19°  |
| MOUNT TYPE         | rigid; short <sup>1</sup> | rigid; long or short <sup>1</sup>  |
| FOCUSING PRINCIPLE | rotating                  | parallel or rotating <sup>4</sup>  |
| CLICK STOPS        | yes                       | yes  |
| COUPLING           | Visoflex                  | rangefinder or Visoflex <sup>1</sup>   |
| FLANGE DIAMETER    | 59.8mm                    | 36mm <sup>3</sup> /42mm <sup>2</sup>   |
| WEIGHT             | 20.5 oz.                  | long: 13 oz. <sup>3</sup> /15.5 oz. <sup>2</sup><br>short: 8 oz. <sup>3</sup> /8.25 oz. <sup>2</sup> |
| MINIMUM FOCUS      | 4 feet                    | 5 feet   |
| MINIMUM FOCUS AREA | 7½ x 11¼"                 | 8¾ x 13"   |

<sup>1</sup>Short-mount lens couples to Visoflex, long-mount to rangefinder.

<sup>2</sup>Bayonet-mounting.

<sup>3</sup>Screw-mounting.

<sup>4</sup>Short-mount, rotating; long-mount, parallel.



Siegfried Hartig

"INTIMATE" PICTURES of sports are possible with long lenses. From a safe distance, you can capture the expressions of individual competitors, and reveal unseen drama and action.

distant, unapproachable waterfall right up to the foreground to fill your slide.

Long-focus lenses are also excellent for taking candid pictures of people at work and play—you can stand across the street or at the other side of the room and still register telling detail.

Figure 1 shows a picture seen by a 50mm lens. Figure 2 shows the same scene taken with the 90mm lens. And Figure 3 shows the result with a 135mm lens. Notice how the architectural details increase as longer focal-length lenses are used, and the background takes up less space in the photograph. But notice particularly the marked difference between the 50mm and 135mm pictures—how the distant moun-

Nicholas Olefar



CLOSE-UPS FROM SIDELINES are specialties of the long-focus lens. This one of football in a fall rainstorm was shot with a 135mm Hektor, Tri-X film, action stopped 1/500 second at f/8.

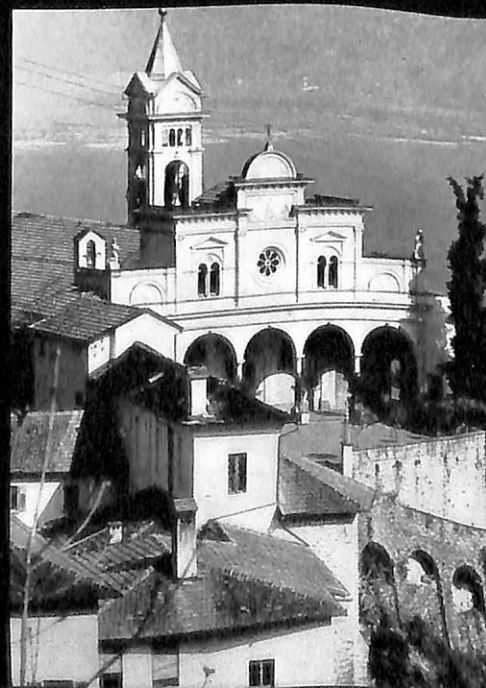
tain slopes seem to move in, and the bay appears much less wide. What's more, we have made different pictures, merely by switching lenses.

#### frame finder

For sports work, with Leicas other than the M-3, a frame finder is useful with the long-focus lenses. It shows a large area around the actual image field so that you can see the approaching action. The Universal Frame Finder covers the fields of 50, 90, and 135mm lenses. Since the 125mm field is slightly larger than that of the 135mm field, the latter frame can be used for both lenses.

The 135mm becomes one of the most versatile of all

Fig. 1, 2, 3. BIGGER IMAGES are the reward of longer lenses. The 135mm (right) gives 270 per cent larger image than the 50mm (left) and 50 per cent larger than the 90mm. Note the increasingly flat effect, left to right, from "pulling in" distant subjects.





Hans Cordes

AMPLE WORKING DISTANCE between camera and subject in macro-photography is provided by long-focus lenses. A IIIa with 135mm lens, Bellows, Visoflex and Braun Hobby flash were used here.

Leica lenses when used with the Bellows and Visoflex. With this equipment, it focuses continuously from infinity down to an image-to-object ratio of 1:1 (life-size). Extension tubes *plus* the Bellows will give larger-than-life images. You can also use extension tubes without the Bellows to increase the focusing range.

#### the 125mm Hektor f/2.5

While the 125mm Hektor offers most of the advantages of the 135mm f/4.5 lens, it has the extra virtue of great speed. This lens is very much at home on a picture story. Its large aperture permits you to work without flash and the accompanying clutter of bulbs,



Walter Wisenbach

WARY SUBJECTS stay unalarmed when you stand far back and shoot with long lens. Here, a 135mm Hektor, Visoflex, two electronic flash units and KB-17 film, gave a detailed "close-up."

wires, and stands. Furthermore, you can work unobtrusively, further away from the action. For close-ups, you can fill the frame without moving in on the subject to the point where it appears distorted.

The 125mm lens gives a wonderful plasticity to portraits. With its shallow depth of field at full aperture, you can throw everything out of focus except the principal features of your subject. The effect is more marked than with the 135mm f/4 lens because of the f/2.5 aperture of the 125mm Hektor.

The large diameter of the 125mm Hektor, due to its high aperture, prevents it from being used with the built-in range-and-viewfinders. It is used with the Visoflex and also adapts for use with the Bellows.

IN GALWAY, IRELAND, this woman walked in complete naturalness because the photographer could stay 25 or 30 feet away and still fill the frame when using a 135mm Hektor lens on the camera.

Farrell J. Grehan





## use that self-timer! / J. J. Heatley

After waiting several hours one day for a model (one of my client's technical men) to appear, it occurred to me: why not use the self-timer in my camera and be the model myself? Practice runs with the self-timer proved I could depend on the shutter to click on "11" after counting from "one" to "ten alligators!"

I took a series of technician-at-work shots that day and it was a revealing experience. I needed to do no explaining to a model, had plenty of time to compose my shots, and took a number of "extras."

Timing your action to the shutter's release is important in self-timer shots, but a little experience will develop your skill. In Figure 1, it took several tries to catch that point of the swing...but even the "misses" made good pictures!

There are several approaches to action. The peak of action occurs at the crucial point between rapid motions in different directions; the topmost point of a spring-board dive, for instance. Prolonged action, such as the flight of a tennis ball, has no peak. Prolonged action pictures with a self-timer are easy to catch. Peak action pictures are a matter of chance... but a tempting challenge!

The self-timer is also excellent for "pictorials." In the past, I had often passed up beautiful pictures because no person was around to add human interest, mood, or perspective to the scene. But now, I set up the tripod and proceed by myself. For Figure 2, eleven seconds self-timer delay allowed me to scurry up a gangway to the preselected spot, and cast at the time the shutter clicked! The 35mm Summaron made me appear farther away than the actual 25 feet.

There are many other benefits in self-timer picture work. One is that the camera must be held by a tripod thus eliminating possible camera movement during exposure. Another is that you can explore many camera angles. What photographer doesn't feel a little foolish lying flat on the ground in public, trying to catch that unusual angle! (For Figure 3, the camera was tripod-held four inches above the ground.)

Since there is no pressure of time and concern for other people's feelings, you can compose your picture carefully. So often, under pressure, viewfinder composition is overlooked with the excuse that if the subject is adequately covered, composing can be done in the darkroom.

Other types of pictures to which the self-timer technique lends itself well are "how-to-do-its" and studio still life. In still-life work I use the self-timer's delay to move into the light and hold a reflector in that "just right" position.



Fig. 1. SEVERAL TRIES, using self-timer technique, produced the precise action effect the author desired.



Fig. 2. WIDE-ANGLE LENS increases the apparent distance from camera to subject. Author is actually only 25 feet away.

Fig. 3. CONTINUOUS ACTION of ball is easy to catch at 1/200. Slower shutter would give better action blur.



## new hope for shaky snapshots / *Sergei von Holbeck*

"NORMAL" HOLD for horizontal pictures with the 50mm lenses. Thumb is behind film advance lever. Base of the palm steadies camera against downward thrust of the shutter finger.



*Photographs by Maynard Frank Wolfe*



LONG-FOCUS VERTICALS are shot with the left forearm held vertically with fist doubled under the lens as a "unipod." As in other holds, camera is braced against the forehead.

Armed with Leica M-3, Mr. von Holbeck shows how to keep steady on this and the following two pages. ►



VERTICALS with film advance lever "down" are taken with thumb! Palms of both hands support camera and counteract thumb pressure as exposures are made. Thumb also advances film.



Are your pictures less sharp than you expect?

Some years ago, a check was made on hundreds of films as they were going through a photo processing lab. Results showed that 80 per cent of the unsharp negatives were caused by camera movement. The rest were improperly focused pictures. So, according to the evidence, if your negatives aren't sharp, you yourself are probably to blame. Are you really holding the camera steady when you shoot?

There are many ways to hold the Leica steady, but you should pick the best one for the particular situation.

Study the twelve pictures which appear here. Each shows a way to hold the Leica rock-steady to retain the image sharpness of Leica lenses.

One little trick which is not illustrated here is to release the shutter via the self-timer which is built into current Leicas. This is most useful at speeds below 1/25 second. But keep it in mind even at 1/100 second or faster, since you can still register camera movement if you are careless.

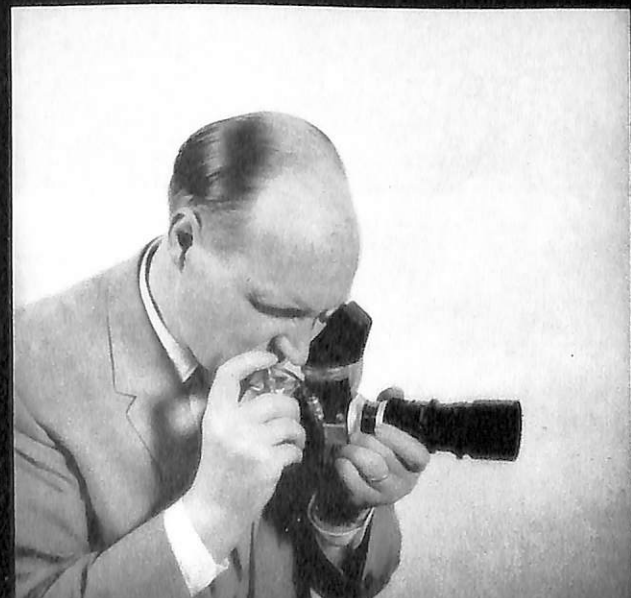
Remember—any unsharpness in your negative is increased by the same amount that the image size is increased when enlarged.

VERTICALS with 200mm Telyt and Sports Finder feature a grip on the Visoflex magnifier to steady the camera and lens. Double cable release is not used with Sports Finder.

FOLLOW-FOCUS HOLD with 135mm lens features left-hand grip on lens, not camera, since center of balance is changed. Grip supports lens firmly, permits rapid change of focus.



FOLLOW-FOCUS TECHNIQUE WITH TELYT uses Release Coupling and Visoflex. Left hand supports lens and adjusts focus. Release Coupling should be adjusted to individual Visoflex and Leica.







**VERTICALS** with film advance lever "up" call for support of the left arm held vertically. Palm of the right hand also steadies camera. Thumb operates lever, index finger releases shutter.



**TRIPOD** is the most customary way to steady camera. If you use one, be sure to get one that is rugged. Even a strong breeze can shake a flimsy tripod, defeating its purpose.



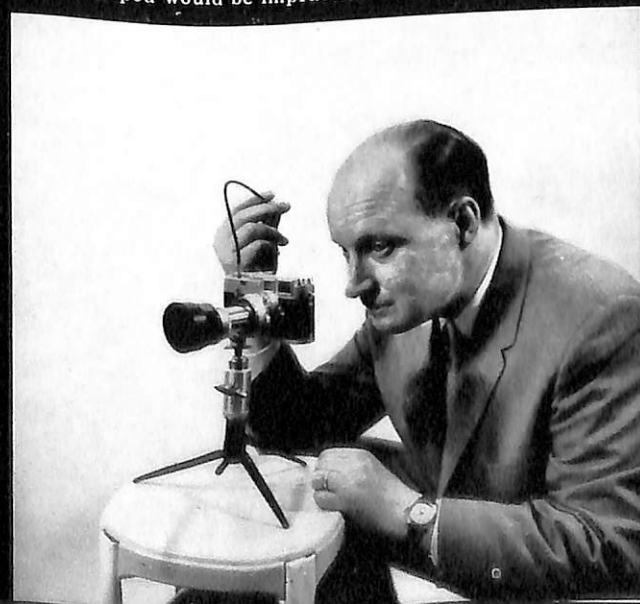
**TABLE TRIPOD ON WALL**, architectural columns, etc. provides a steady support under difficult shooting conditions. Ball-joint head permits focusing and framing in any direction.

**TABLE TRIPOD** takes up little room, is light and sturdy. It permits time exposures in numerous situations where use of a regular tripod would be impractical or impossible.



**HORIZONTALS** with 200mm Telyt and Sports Finder are shot after pre-focusing through Visoflex. Mirror is locked in raised position, camera panned with action. Note left forearm support.

**"CHEST-POD"** gives firm support to the camera and it permits hand-held exposures longer than 1/25 second. It is particularly suitable for work at low light levels or in emergencies.



## focusing on...

**dual-range lens markings.** Some owners of the new Dual-Range Summicron 50mm lens have asked about the designations "1:15, 1:12, 1:10, 1:9, 1:8, 1:7.5" which appear on the focusing scale for the close-up range of the lens.

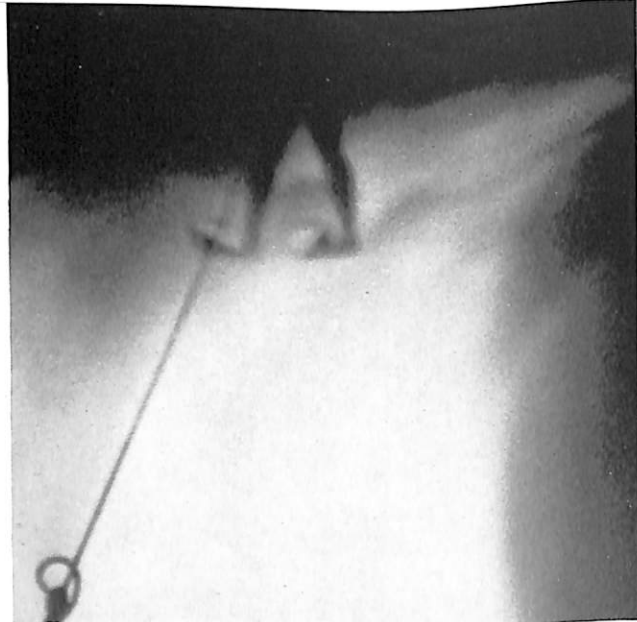
The markings represent ratios of reproduction—figures that concern us in copying work and macro-photography. One reason for this concern is the increased exposure necessary when the lens is racked out further than for normal photography. The increase is negligible at most ratios within the range of the Dual-Range Summicron—a maximum of 1.3x. But precisionists can determine exactly how much to increase the exposure for perfect rendering, by checking the ratio of reproduction of the lens mount and by referring to standard charts.

Another use for the r-of-r numbers is in determining the area covered at a given setting. You know that a Leica negative covers 1 by 1½ inches. If the reproduction ratio is 1:10, for instance, the object area will be 10 by 15 inches.

**unexisting-light photography.** These photographs by Frank H. McFerran of Mayaguez, Puerto Rico, were taken by what may be the least "existing light" in the world—bioluminescence. This is the glow given off by certain living organisms, in this case, some microscopic inhabitants of Phosphorescent Bay, a natural wonder of Puerto Rico.

The problem of taking pictures solely by the light of agitated animalcules was first posed by Dr. Juan A. Rivero of the University of Puerto Rico who thought the photographs would be useful in research.

© Frank H. McFerran



© Frank H. McFerran

BIOLUMINESCENCE was only light for photo of water skier as he followed in the luminous wake of a boat.

McFerran thought that pictures taken by such light were out of the question—but perhaps the light source itself might give enough light for silhouettes. The next problem was how to stir the microorganisms to peak light output. Dr. Arturo Bonavent of Mayaguez suggested running his speedboat through the bay while McFerran took a short time-exposure from the deck showing the luminous wake of the boat with a silhouette in the foreground. Although this idea broke most of the rules, it worked—as you can see.

Surprisingly, the launch steadied itself at 30 mph. Its rowboat tender also held steady in the launch's wake. McFerran set up his Leica on a heavy tripod, and shot at one second, wide open, with a Summarit f/1.5 on Tri-X. Four to five minutes in Dektol Stock Solution gave the pictures you see here.

**technical tips.** Current M-3 cameras have shutter speeds in geometric sequence—1 second, ½, ¼, ⅛, and so on. If you buy an M-3 with Leica-Meter "MC", or have an M-3 and plan to buy the meter, be sure that the meter you get has a dial calibrated with the speeds that appear on your camera.

In focal plane shutters, both curtains must be open to give an even exposure with electronic flash. The highest speed at which the focal plane shutter is wide open and will synchronize with electronic flash is 1/50th. The M-3 now carries a red arrow (↗) on its shutter speed dial between the 1/30 and 1/60 second settings for this speed. You can also use it as 1/50 second for regular outdoor photography.

The IIIg camera has red and black arrows on its fast shutter speed dial—synchronization settings for electronic flash and 5-millisecond-delay bulbs respectively. Both may be used with electronic flash, but conventional flash bulbs (fast-peaking) synchronize at the red arrow setting *only* (next to 1/30th). Do not use Class M or FP bulbs at the red *or* black arrow settings!

THIS PICTURE of Dr. Bonavent running his boat through Phosphorescent Bay is an "action time-exposure" by bioluminescence.

# Leica IIIg



**unlimited range...superb quality  
new operational ease**

The Leica and the Leica System of 35mm photography are designed to meet diversified photographic requirements with a facility and precision unmatched in the field. Now, with the latest development in classic Leica camera design—the Leica IIIg—traditional Leica dependability and versatility are combined with new, *outstanding features of camera performance:*

**bright-line viewfinder** The field of view of 50mm lenses is outlined clearly and accurately by a brightline frame visible in the viewfinder at all times. Also permanently visible are four bright triangular corners marking the field for 90 mm lenses. Both of these frames are parallax corrected throughout the focusing range. The viewfinder image is .7x life size and the eye lens is free of viewing-parallax.

**automatic flash synchronization** When shutter speeds are reset, flash synchronization is achieved automatically for flash bulbs and electronic flash units.

**separate, focusing rangefinder** The IIIg rangefinder, with 1.5x magnification and eyepiece immediately adjacent to viewfinder, assures ultracritical focusing of the lens. In addition, the rangefinder optical system may be focused to accommodate near or distant objects and individual eyesight.



Looking through IIIg viewfinder

**other famous Leica features:**

- Compactness, light weight, rigid construction
- Over 12 different interchangeable lenses available
- Widest range of accessories in the 35mm field
- Focal-plane shutter, speeds 1 second to 1/1000 second, T and B, calibrated to correlate with f-stops
- Double exposure prevention
- Built-in self-timer, accessory clip, film reminder dial
- LEICAVIT accessory replaces baseplate for rapid sequence photography

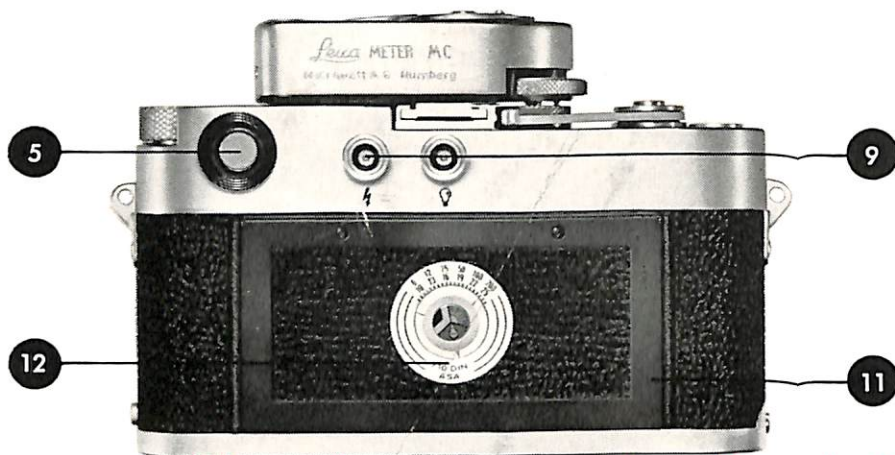


LEICAVIT rapid winder (optional)



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no matter how you look at it



the M-3 is the ultimate in "35"



there's nothing like a LEICA

1. **Combined viewfinder-rangefinder** of life-size image offers the benefits of both split-image and coincident-image focusing.
2. **Bright-line frames** in viewfinder are automatically brought into position by the interchangeable 50mm, 90mm, 135mm lenses; frame selector offers preview of fields of view.
3. **Automatic parallax compensation** is continuous for all lenses, from infinity to closest distances.
4. **Two-stroke film advance**, fastest rapid-lever method, permits continuous picture-taking without moving camera from the shooting position.
5. **Viewfinder accuracy** is unaffected when viewing at oblique angles; extra-large eyepiece guarantees perfect sighting even when wearing glasses.
6. **Automatic film counter** resets itself for next roll of film when take-up spool is removed from camera.

7. **Shutter speeds on one dial** (click-stops: 1 to 1/1000 second, and B for time exposure).
8. **Removable exposure meter** couples with entire range of shutter speeds, has extremely wide range of light sensitivity.
9. **Internal contact adjustment** assures full flash synchronization for many types of flashbulbs, and electronic flash at 1/2s and 1/50s.
10. **Bayonet lens mount** combines quick-change convenience with the precision formerly associated only with the screw-thread types.
11. **Hinged back plate** for easy loading and inspection; constructed so that the rigidity of the classic LEICA housing is maintained.
12. **Locking film speed indicator**.

Write for a copy of the illustrated brochure on the M-3:



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